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Quality Research has Highest Return on Investment

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Contribution of medical research is immense, both to economy and healthcare. Medical research contributes immensely to the society through its impact on frontiers of economics like – direct cost saving in healthcare, healthy workforce, healthy society, commercial drug development, etc [1].

Quality research can effectively decrease disease burden and the cost associated with disease. For example, in the USA, all cause mortality decreased from 842/100,000 people in 1950 to 479 in 1997. Similarly, five year cancer survival rates improved from 35% in 1950s to 62% in 1990s. Contribution of research is immense in these achievements [2].

In addition to improvement in health, medical research has significant returns on investment in terms of economics. For example, development of hepatitis B vaccine at a cost of $31.8 million saved $346.6 million to $462.1/year by decreasing the cost of illness and mortality. Research can not only have impact through development of new products like hepatitis B vaccine but also through contributing towards better understanding of disease and treatment strategies. A study which compared medical therapy with surgery among the population in which coronary artery bypass grafting could be potentially deferred, saved $402 million to $804 million/year owing to savings in treatment cost; while the research cost was just about $36.5 million [2].

All the above was possible because of high quality research[1,2] in developed world. The scenario is apparently different in developing world. A report by *Sadana et al.* suggests that health care system in South Asia faces several challenges; there is a need for ethical research, good research environment, institutional support, funds, appropriate training, career opportunities, collaborations, informed health policies, improvement in public health awareness and improvement in public behaviour [3].

Health research training is an important component of healthcare research infrastructure as the rapid progress in the field is expected to transform biomedical research. Physician-investigators or physician-scientists have a major role in translating the basic research to therapies useful in patients. However, the number of physician-scientists is decreasing all over the world [4].

Unfortunately, the ground reality of research training and attitude is very poor in India. Several Indian studies stand in evidence of poor attitude and training in India. In a study by *Rani et al.*[5] (done at a medical college in South India), although about 68% of undergraduate medical students were interested in research only about 9% actively participated. Lack of knowledge of research methodology was the most important reason for non-participation followed by time constraints, lack of guidance and lack of financial support[5].

Results of a study by Chaturvedi and Aggarwal[6] were also similar. In the study, interns were provided with hands-on learning experience in the field of population-based research. Large proportion of

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of students participated to a minimal or unsatisfactory levels with respect to research report writing and presentation. The learning about research was a first time experience for close to 91% of participants. More than half of the participants reported that their priority during the period of internship was preparing for post-graduate entrance test rather than learning research[6].

Studies on attitude of Ayurvedic practitioners towards research are lacking. However, it can't be denied that there has been a significant amount of research over past 5 decades in the field of Ayurveda. Government has created institutes like Central Drug Research Institute, Regional Research Laboratory, Jorhat (RRLJ), Central Council for Research in Ayurveda and Sidha, and the Department of Ayurveda, Yoga, Unani, Siddha and Homeopathy (AYUSH), etc. to promote research in alternate medicine. Most of the research has focused on development of new medications. In future, there is a need for research in the field of basic principles of Ayurveda[7].

In spite of all the efforts to promote research in alternate medicine, poor research practice is also a reality. There are often flaws in research design and the study population is usually small. In addition, improper statistical methods and lack of consistency in treatment and product are also commonly observed. Use of multiple or combination of treatment options (owing to whole body treatment including body and mind with drugs, lifestyle changes and non-drug therapies) has made arriving at practical conclusions of research outcomes a challenging task. Lack of standardized physiological and pathological entities in traditional medicine makes high quality research and extrapolation of results to bigger populations' difficult.8[8].

According to Nahin and Straus, the quality of research in traditional and complementary medicine can be improved through strong commitment by researchers and rigorous designing of studies[8].

In conclusion, changing the attitude towards research training, better designing of research, creating research careers and including research in early part of curriculum can probably improve research scenario in Ayurveda. Improved research scenario in Ayurveda can benefit Ayurveda as well as people equally. Inclusion of research methodology in BAMS curriculum by Central Counsel of Indian Medicine (CCIM) is a welcome move towards creation of quality researchers and research environment.

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